Ref. 53

Cooperatives In the Dairy Industry

Introduction

Farmer-owned dairy cooperatives in the United States engage in a variety of functions in the dairy industry to provide members an assured market for their milk. They may negotiate prices, assemble, haul, manufacture, process, or market milk and dairy products to wholesalers, retailers or in their own stores.

Dairy cooperatives range widely in size and function—some solely arrange for the sale of members' milk and provide few services, while others manufacture a wide range of products and/or may market their own branded products directly to consumers. Additionally, many offer supporting services for their members, such as providing field services, selling milk production equipment and supplies, and providing health insurance.

A dairy cooperative business is owned, operated, and controlled by the dairy farmers who benefit from its services. Members finance the cooperative and share in profits it earns in proportion to the volume of milk they market through the cooperative.

Most dairy cooperatives are organized on a centralized basis--farmers are direct members. Only a few dairy cooperatives are organized on a federated basis--members of the cooperative are other cooperatives or a combination of direct members and cooperative members. Many are organized to serve farmers in a local area or single State, while others serve members in multiple States--regionally or nationally. Some dairy cooperatives have made additional business arrangements to increase outlets for members' milk through subsidiaries, partnerships, joint ventures with other cooperatives or investor-owned firms, federations, and marketing agencies-in-common with other cooperatives.

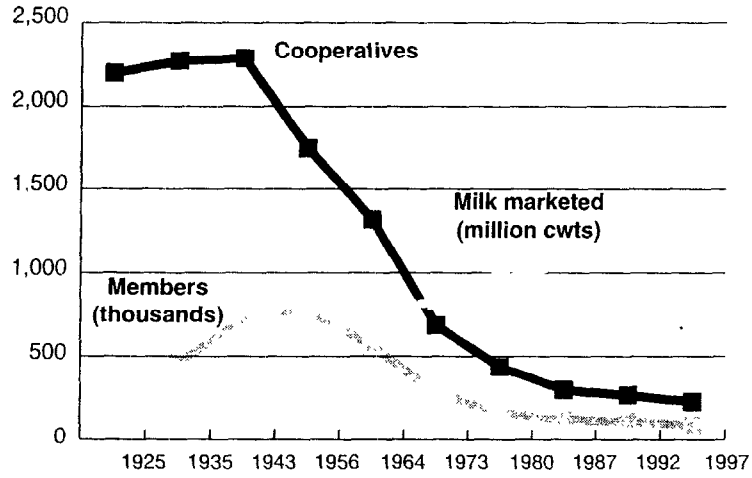
Status Quo

Dairy cooperative numbers in the United States peaked in the 1940s at close to 2,300 in 42 states and have subsequently declined (fig. 1, table 1). By 2000, the nation had only 213 dairy cooperatives headquartered in 29 of the 50 States.

Dairy cooperatives represented 30 percent of all agricultural marketing cooperatives in the U.S. in the mid-1940s, falling to 12 percent in 1997 (the most recent year dairy cooperatives were comprehensively surveyed by RBS). Thus, their numbers declined faster than their counterparts marketing other agricultural commodities. Likewise, the number of milk producers belonging to a dairy marketing cooperative peaked in the 1950s at around 777,000 and subsequently shrunk to just under 88,000 in 1997.

In sharp contrast, the volume of milk handled by cooperatives expanded from 31 billion pounds in the mid-1930s to 127 billion in 1997. On a per-cooperative basis, cooperatives handled an average of 14 million pounds of milk each in the mid-1930s. By 1997, the average volume handled was 564 million pounds. Concurrently, the share of all milk delivered to plants and dealers in the U.S. handled by cooperatives rose from 48 percent in the mid 1930s to 83 percent in 1997. That same year, 98 percent of

Figure 1—**Trends in number, volume and membership of dairy cooperatives, 1925-1997**



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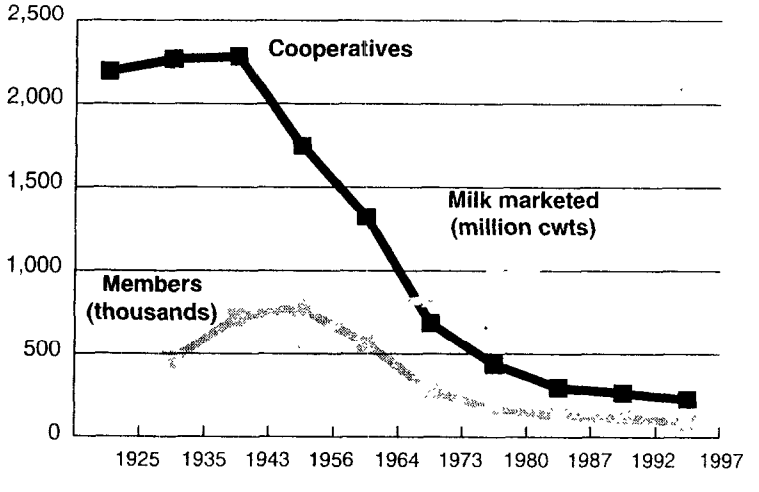


Table 1—**Cooperative numbers, volume of milk marketed and number of members, 1925-97, selected years**

Year	Dairy Cooperatives	Percent of all U.S. marketing cooperatives	Milk marketed by dairy cooperatives[1]	Coopertive share of U.S. total[2]	Members of dairy cooperatives
	(Number)	*(%)*	*(Million pounds)*	*(%)*	*(Number)*
1925	2,197	-		-	460,000
1935/36	2,270	27	31,058	48	720,000
1943/44	2,286	30	n/a	-	702,000
1956/57	1,746	28	58,038	59	777,400
1964	1,244	24	76,743	67	561,085
1973	592	14	83,227	76	281,065
1980	435	12	95,634	77	163,549
1987	296	10	105,798	76	120,603
1992	265	12	122,622	82	110,440
1997	226	12	127,418	83	87,938

[1] Net of intercooperative transfers.
[2] Dairy marketing cooperatives' share of all milk delivered to plants and dealers.

Source: *Marketing Operations of Dairy Cooperatives*, selected years.
Statistics of Farmer Cooperatives, selected years.

the milk received by dairy cooperatives came directly from member-producers. The rest came from nonmembers or investor-owned firms.

The share of milk represented by cooperatives varies between the regions of the United States. More than 90 percent of the milk sold to plants and dealers in the East North Central, West North Central and South Atlantic regions was handled by cooperatives in 1997 (table 2). In contrast, cooperatives had the lowest share of marketing activity in the North Atlantic region (69 percent) followed by the Western region (73 percent). (Ironically, 44 percent of all cooperatives are headquartered in the North Atlantic region.) The cooperative share was 89 percent in the South Central region.

In 2000, the majority (60 percent) of U.S. dairy cooperatives handled less than 50 million pounds of milk annually. Twenty-nine percent of the nation's dairy cooperatives were medium-sized cooperatives while large cooperatives, those handling at least 1 billion pounds of milk a year, accounted for 11 percent.

Cooperatives sold 61 percent of the milk they marketed raw and processed or manufactured 39 percent in their own plants in

Table 2—**Dairy cooperative numbers, marketing share and number of producers, by region, 1997**

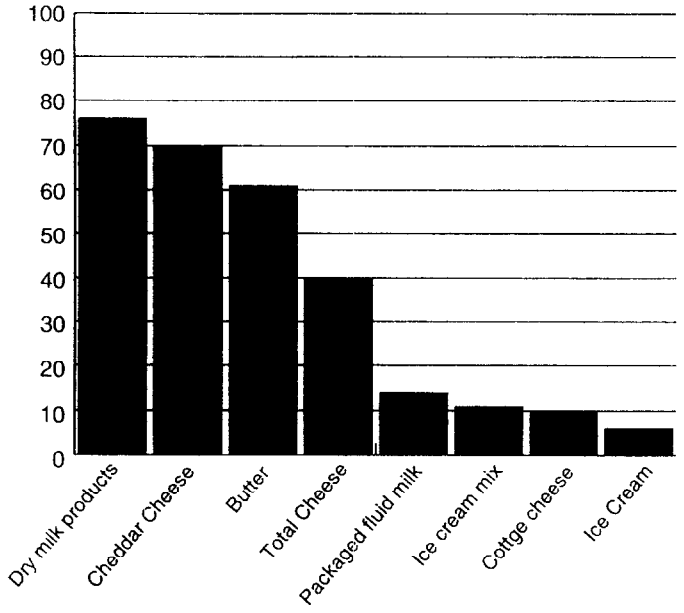
Region	Marketing share[2]	Number of cooperatives[1]	Regional share	Members delivering	Regional share
	Percent	*Number*	*Percent*	*Number*	*Percent*
North Atlantic	69	87	39	15,394	18
East North Central	90	48	22	35,240	40
West North Central	93	71	32	22,343	25
South Atlantic	90	14	6	3,501	4
South Central	89	11	5	7,613	9
Western	73	28	13	3,847	4
All regions[3]	81	222	100	87,938	100

[1] Cooperatives having members in the region, but not necessarily headquartered there.
[2] Cooperative member volume as a percentage of milk sold to plants and dealers in region.
[3] Number of cooperatives do not add to totals because some receive milk from more than one region
States in each region: North Atlantic (CT, MA, ME, NH, NJ, NY, PA, RI, VT); East North Central (IL, IN, MI, OH, WI); West North Central (KS, IA, MN, MO, ND, NE, SD); South Atlantic (DE, FL, GA, MD, NC, SC, VA, WV); South Central (AL, AR, KY, LA, MS, OK, TN, TX); Western (AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, WY).

1997. Dairy cooperatives have marketed a majority of the total cheddar cheese, butter and nonfat dry milk products produced in the U.S. for the past 50 years or so (fig. 2, table 3). Cooperatives' shares of nonfat dry milk and butter production were largest in 1987 at 91 and 71 percent, respectively. Shares of nonfat dry milk, butter and cheddar cheese have since fallen, but still represent a majority. Minor shares of the nation's total natural cheese, packaged fluid milk, cottage cheese, and ice cream were distributed by cooperatives over the years.

The estimated net business volume of the nation's dairy cooperatives has expanded 40-fold, from $520 million in the mid-1930s to $22.7 billion in 2000 (table 4). That volume has fluctuated

Figure 2—**Cooperatives' market share of selected dairy product production, 1997**



between 27 percent of the total net business volume of all agricultural marketing cooperatives in the U S (1943-44) to 38 percent (1987), and was 32 percent in 2000.

Cooperatives in the Dairy Industry

The production of milk has some distinguishing features. Milk is highly perishable, produced and "harvested" on a daily basis, and moved from farm to market every other day, if not every day. The volume of milk produced varies seasonally and daily for biological reasons. This variation is not coordinated with changes in demand, which also vary from day to day and from season to season. The task of balancing, or coordinating, the amount of milk supplied with the volume of milk desired is thus problematical.

Storage to balance supplies with demand is feasible only after processing, except in the very short term. As technology developed, conversion of milk from raw product to various intermediary

Table 3—**Cooperatives distributing selected dairy products, number and market share, selected years**

Year	Bulk whole milk[1]		Packaged fluid milk		Ice cream		Cottage cheese	
	No	*%[2]*	*No*	*%[3]*	*No*	*%[3]*	*No*	*%[3]*
1936	408	48	-	-	57	1	14	1
1944	-	-	-	-	-	-	-	-
1957	735	62	-	-	130	4	108	7
1964	730	57	215	9	143	5	126	15
1973	548	63	85	12	60	5	64	13
1980	352	55	60	16	38	11	42	22
1987	251	51	34	14	21	8	23	13
1992	230	57	29	16	20	10	22	13
1997	204	61	21	14	13	6	13	10

Year	Cheddar cheese		All natural cheese		Butter		Nonfat dry milk	
	No	*%[2]*	*No*	*%[3]*	*No*	*%[3]*	*No.*	*%[3]*
1936	n/a	n/a	562	25	1,444	39	139	17
1944	n/a	n/a	501	16	1,164	55	-	56
1957	n/a	n/a	323	18	888	58	191	57
1964	n/a	n/a	294	21	740	65	212	72
1973	n/a	n/a	187	35	207	66	57	85
1980	n/a	n/a	157	47	148	64	48	87
1987	n/a	n/a	94	45	82	71	31	91
1992	59	75	75	43	68	65	26	81
1997	33	70	45	40	36	61	25	76

Source: Marketing Operations of Dairy Cooperatives, selected years.

[1] Bulk whole milk includes "market milk" and milk sold as market cream and butter is "creamery butter."

[2] Percent of all milk marketed by cooperatives

[3] Percent of total processed or manufactured in the U.S. distributed by cooperatives

and final products with longer shelf-lives became possible, but required increasingly capital-intensive facilities and technologies that are subject to significant economies of scale.

These fundamental characteristics of milk production, in concert with adverse marketing conditions and the economies available from jointly owned milk handling facilities and manufacturing plants, led dairy farmers to pioneer the application of cooperative principles to marketing U.S. farm products.

Table 4—**Estimated business volume of U.S. agricultural marketing cooperatives, selected years**[1]

Year	Dairy Cooperatives	Percent of all market cooperatives
	(Million dollars)	*(%)*
1935/36	520	33
1943/44	1,203	27
1956/57	2,764	35
1963/64	3,524	31
1972/73	6,102	31
1980	13,666	28
1987	16,548	38
1992	20,239	35
1997	23,374	30
2000	22,721	32

[1] Includes gross business volume in 1935/36 and 1943/44. The remaining years include net business volume where business between cooperatives was excluded. Source: *Cooperative Historical Statistics* and *Farmer Cooperative Statistics*, selected years.

Initial organization—In the early days of the nation, dairy farms were relatively small and remotely located. Cooperatives sprang up spontaneously, formed by groups of farmers seeking solutions to common problems. These groups drew upon cooperative traditions that immigrant dairy farmers had brought with them from Northern Europe. Milk from several farms was pooled in one location (either by hauling milk or cream in cans or by taking cows to the factory to be milked) and made into cheese or butter.

Part of the net proceeds was returned to patrons in proportion to the amount of milk each furnished. Cooperative creameries were generally organized in areas where a large portion of the milk produced could best be marketed for butter production, thereby avoiding the high cost of transporting whole milk to distant city markets.

The first reported cooperative cheese factories were established in the mid-1800s. The number of creameries grew slowly until mechanical cream separators were introduced around 1890. By 1900, there were around 6,000 creameries and almost 3,000 cheese factories. About one-third were organized as cooperatives.

Milk evaporating and drying facilities emerged in the 1920s and subsequently some creameries installed milk drying facilities to provide a market for buttermilk and skim milk.

Concurrently, the organized marketing of raw milk for fluid consumption began during the latter part of the 18th century in cities where families were unable to obtain milk from nearby producers. A system of "middle-men" between producers and consumers began to emerge in the 1800s. Fewer and fewer producers carried out all marketing functions. Milk price was determined by negotiation where both buyers and sellers were small and numerous.

During the mid-1800s, the rapid construction of railroads permitted increased movement of "fresh country" milk to the cities. Expanding urbanization made it necessary for families to obtain milk from distant dairy farms in the country. Dairy farmers formed associations to arrange these early shipments of "pure" country milk to the cities.

By the late 1800s, the milk marketing system was steadily moving toward a structure where hundreds or thousands of dairy farmers sold to only a handful of large fluid milk dealers. Consequently, cooperative associations developed around the major cities in the eastern part of the U.S. and in Chicago to negotiate milk prices with milk dealers and distributors.

One tactic the early cooperatives employed to compel reluctant milk dealers to negotiate with them was the "milk strike." Farmers would withhold milk from the market which would tighten supplies. This had short-term success in enforcing cooperative demands. Even so, the dealers began to develop a bargaining edge over farmers, primarily due to better market information through their powerful organizations. In addition, the rural isolation and the generally independent nature of most dairy farmers combined to restrain cooperative growth at that time. Nonetheless, early cooperative associations laid the foundation upon which later ones were built.

In the early 20th century, unfavorable economic conditions, chaotic pricing of fluid milk, and dealers who balanced fluctuating supply needs by refusing to accept some producers' milk spurred on the successful formation of large-scale cooperative bargaining organizations for raw whole milk. Another important stimulus to cooperative development was Government policy for food control during World War I.

The Federal Food Administration, operating from 1917 to 1919, preferred to deal with groups rather than individuals. Cooperative associations were the only representatives of milk producers and the Administration advised milk distributors to accommodate producers' price demands. They complied rather than oppose the Administration.

Furthermore, in a number of instances at that time, the right of producers to join in negotiating price and terms of sale with distributors in a particular market was questioned. On several occasions, leaders of an association were criminally prosecuted for violating antitrust laws—attempting to increase and fix the price of milk. Even though they were found not guilty, the prosecutions were a disturbing element in the advancement of dairy cooperative associations.

Enactment of the Capper-Volstead Act of 1922 granted cooperatives limited exemption from Federal antitrust acts and the problem abated By 1925, cooperative dairy associations were reported in all but 6 of the 48 states. In many cases, Government action had helped to give producer cooperatives a foothold strong enough to ensure their lasting establishment. Dairy cooperatives were thus positioned to provide an effective solution for dairy producers' marketing problems.

Adapting to changing markets--Early bargaining associations quickly found that increases in milk prices led to problems in disposing of milk not needed for fluid use. In response, numerous markets adopted classified pricing plans in the 1920s and early 1930s. In every case, a cooperative negotiated its adoption with the larger dealers. These plans recognized the difference in the value of milk depending upon how it was used and thus based raw milk prices on end-use. Audit procedures were also established to assure correct payment by handlers. Consequently, dairy cooperatives developed milk pooling systems to more equitably distribute returns for milk used in different products to members and also implemented plans for dealing with the seasonality of milk deliveries.

Government dairy programs. However, despite these efforts by cooperatives to standardize milk pricing, there was continued instability in fluid milk marketing during the 1930s. This led many States to adopt milk marketing orders. Federal Milk Marketing Orders (FMMO) were first authorized under the Agricultural Mar-

keting Agreement Act of 1937. By institutionalizing and enforcing classified pricing, these orders stabilized market conditions and assured adequate consumer supplies of pure and wholesome milk at all times. They benefited both producers and consumers by establishing and maintaining orderly marketing conditions.

Producer approval was required before an order could be implemented. Cooperatives were permitted to bloc-vote for their membership. This led to the organization of many new cooperatives, some formed as a first step in obtaining a milk marketing order and others to represent producer views different from those of the members of existing cooperatives.

In addition, FMMOs exempt cooperatives from a marketing service deduction if they perform certain marketing services. Many small, bargaining-only dairy cooperatives unable to perform these marketing services have affiliated with larger cooperatives to qualify for this exemption.

Up through the early 20th century, many dairy farmers had been separating their milk at the farm—using the skim on the farm and shipping the cream to a butter plant (hence the name "creamery"). Advancements in milk condensing and drying facilities made the nonfat portion of milk marketable and prompted these farmers to switch from shipping farm-separated cream to whole milk. World War II brought an increased need for manufactured dairy products, particularly dry milk products. Through lend-lease funds, the Federal Government financed the construction of several cooperative milk drying plants.

The Federal Milk Price Support Program was also started during World War II and became permanent in 1949. The program supports the farm milk price through Government purchases of butter, American cheese, and nonfat dry milk that cannot be sold commercially for at least the announced prices. Prices for these manufactured products are set at levels intended to enable manufacturers to pay farmers the announced support price for milk. Cooperatives performing balancing services by manufacturing milk not needed for the fluid market into butter, powder or cheese were thus assured of a market for these products at federally set minimum prices. Around this time, many country plant operations changed from private ownership into cooperatives.

Specialization and economies of scale. With improvements in the road system, milk transportation shifted from rail to truck. As significant economies of scale in assembling milk became apparent, there was substantial consolidation of milk receiving stations

and milk plants grew in size and shrunk in numbers. While cooperative numbers contracted, the volume of milk marketed by those remaining expanded.

The development of the interstate highway system, refrigerated transport methods, and innovation in dairy product packaging greatly increased the distance milk and dairy products could travel to market while maintaining quality and shelf life. During the 1960s, widespread use of bulk tanks on the farm drastically changed the marketing of raw milk. Larger volumes of milk could be picked up from each farm and hauled directly (or transferred at a pump-over station to a larger tank truck) to the city from substantial distances. Cooperatives took on much of the milk hauling and routing of milk supplies, which cut costs and led to substantial economies of scale.

Some of the larger raw milk sales cooperatives began to unite in federated regional bargaining associations, thus pioneering regional pricing of milk. Facilitating these efforts were the changes in the FMMO regulations that, in effect, removed barriers to inter-order milk movement and more closely linked the separate orders. When milk supplies tightened in the late 1960s, these federations were able to establish price premiums over minimum prices for fluid milk (over-order prices) in FMMOs extending from the Great Lakes to the Gulf of Mexico and Mexican border.

Conversion to bulk handling and processing of milk at plants was completed by the 1970s. This required not only substantial capital investment but also additional milk volume for low-cost operations. As increased efficiency in production, manufacturing, processing and transporting milk led to fewer, but larger, farms and processing/manufacturing plants, cooperatives adapted similarly. A wave of mergers and consolidations markedly reduced dairy cooperative numbers in the mid-1960s. The larger organizations remaining, however, put farmers in a better position to negotiate with large, concentrated food companies and milk handlers

Many of the large, highly specialized investor-owned fluid processing plants grew interested in avoiding the cumbersome job of obtaining, managing and coordinating milk supplies so they could focus resources on processing and marketing. They increasingly looked to cooperatives to provide the exact amount of milk they needed. Large-scale, multi-plant cooperatives negotiated full-supply contracts with these fluid processors (and in some cases, manufacturers). Under a full-supply contract, a cooperative pro-

vides the exact milk volume the plants need and manufactures the milk in excess of processor demand into other products, such as butter and powder.

This task is complicated because dairy cooperatives rarely dictate the volume of milk members produce. Yet cooperatives can achieve lower costs through economies of size than if each processor managed milk supplies independently. Furthermore, the larger the volume under the control of one organization, the more the random variations tend to offset one another, both within supply and demand and between the two. As a result, the balancing services that cooperatives perform benefit the broader market as well as their members.

Thus, dairy cooperatives came to dominate the functions of supplying fluid milk markets, routing the movement of milk, and balancing supply with demand. In this way, they have increased efficiency in milk marketing and strengthened their position in the marketplace. Their guarantee to market all of their members' milk distinctly sets dairy cooperatives apart from proprietary milk handlers.

Meanwhile, continued development of dairy technology allowed dairy product lines to be expanded and diversified. Consumers received these developments with open arms in many cases, particularly in the case of cheese. Subsequently, the large manufacturing plants that cooperatives developed to manage milk supplies began to evolve into important profit centers in their own right.

In 2000, Federal milk marketing orders were consolidated from 31 to 11 orders, reflecting the increased geographical boundaries of milk markets. Moreover, the Federal minimum support price for milk with 3.5 percent butterfat had been stepped down a total of $3.00 per cwt since the early 1980s to $9.80 in 2000. The lower support prices led to dramatic price swings in raw milk prices, previously unseen since the inception of the support program.

In addition to these regulatory changes, there was another wave of consolidation in the dairy sector among investor-owned dairy firms and grocery retailers. In response, the pace of mergers and consolidation among dairy cooperatives picked up again. Some cooperatives joined forces to satisfy the needs of large, integrated food companies that increasingly looked for milk suppliers with national reach, the ability to provide entire lines of dairy products, or the ability to meet particular product specifications.

Other dairy cooperatives merged to address regional needs and to consolidate complementary or duplicate operations. By 1997, the five largest dairy cooperatives handled more than one-half (56 percent) of the milk handled by all cooperatives. Since then, three of them merged into a single entity, and other cooperative mergers have also been completed. Currently, two dairy cooperatives have national reach in both marketing and membership, while the territories of many others span multiple states.

Another response to the market conditions of the 1990s was taken by a few producer groups located mostly in the traditional dairy regions--the Northeast and Upper Midwest. They formed small marketing cooperatives to try to enhance the value of their farm milk by capturing "middle man margins," by reducing marketing overhead or by pursuing "niche" markets--capitalizing on consumers' interest in the quality and source of their food. Some consumers are willing to pay premium prices for food with various attributes such as "organic," "natural," "hormone-free," pasture-based (grazing), locally produced and "fresh."

Dairy Cooperative Operations

Dairy cooperatives today run the gamut in size and extent of services they provide. They differ markedly because they have taken a variety of avenues to address the needs and preferences of their members and specific market situation.

Most dairy cooperatives employ a general manager or CEO and a staff of field representatives to build membership and provide assistance in improving milk production and quality; laboratory technicians to verify the weight and quality of farm milk delivered; personnel to prepare and distribute market information and represent the association in legislative and regulatory affairs (such as Federal and State milk market order hearings); and office staffs to prepare and distribute milk checks and perform other administrative duties. Cooperatives that manufacture or process milk also have hired personnel to operate the cooperative's plants and develop and market the cooperative's products. Some cooperatives also provide other services such as selling dairy equipment, supplies and feed (even to the extent of having their own system of feed mills in some cases), providing for health

insurance, retirement plans, and, beginning in the 1990s, forward milk price contracts and assistance in using futures markets to manage milk price risks.

Alternatively, many small cooperatives, predominately in the Northeast, limit their activities to arranging milk sales and issuing milk checks. These are often affiliated with larger cooperatives and usually have no hired staff.

A board of directors oversees every dairy cooperative. The board consists of elected producer-members who set the cooperative's policy for the manager to carry out.

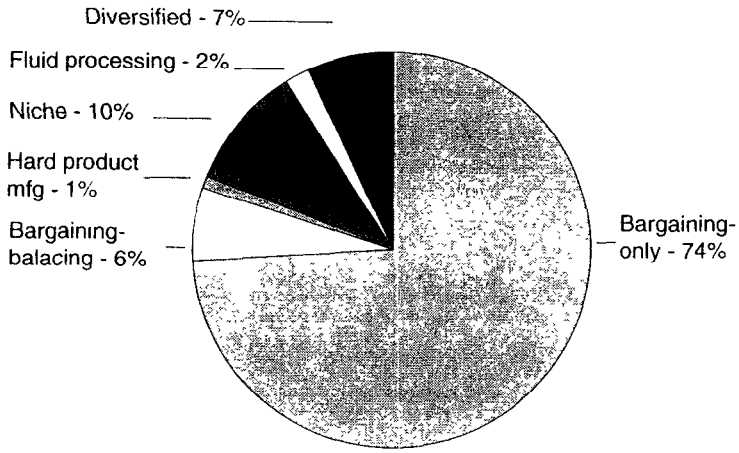
Bargaining-only cooperatives—Many cooperatives focus their operations on negotiating milk prices and terms of trade for members' raw milk but do not engage in further manufacturing or processing. These "bargaining-only" dairy cooperatives are the most numerous (74 percent of all dairy cooperatives in 2000), but represent less than one-quarter (24 percent) of U.S. cooperative milk volume (fig. 3). Some of the larger bargaining-only cooperatives once had manufacturing capabilities, but sold their plants to focus only on milk marketing. Quite a few are joined in pricing federations. A small number are "check-off" organizations that represent member concerns in the policy arena, performing nominal bargaining functions.

Bargaining-only cooperatives have relatively few assets. Most are small (handling less than 50 million pounds of milk annually). A few bargaining-only cooperatives, however, are quite large (handling over 1 billion pounds of milk per year).

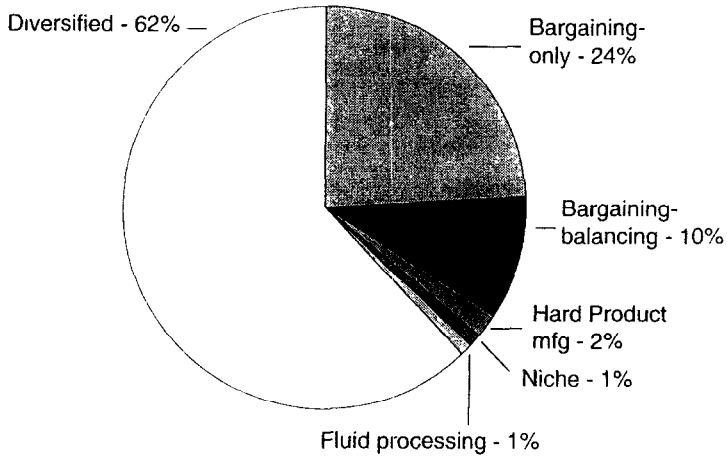
Members of these cooperatives potentially face the greatest marketing risk when the milk supply exceeds market needs. In times of "surplus" bargaining-only cooperatives may have to sell some of their supply at reduced ("distressed") prices and/or incur increased costs in moving members' milk long distances to find a market. Lack of manufacturing facilities to manufacture or process milk into storable products may weaken their negotiating power with milk buyers. Also, they forgo potential margins that may be captured by further processing members' milk. Alternatively, as long as there are buyers of milk, business risk for bargaining cooperatives is low because members are not burdened by the expense of owning and operating under-used manufacturing facilities.

Figure 3—**U.S. dairy cooperatives, by type of operation—share of total number and milk volume, 2000**

Share of Dairy Cooperative Numbers



Share of Milk Handled (estimated)



Manufacturing/processing cooperatives--Just 26 percent of the Nation's dairy cooperatives operated one or more plants for manufacturing some or all of their members' milk into dairy products in 2000. However, these cooperatives account for about three-fourths of all milk handled by dairy cooperatives. Owning manufacturing facilities improves a cooperative's ability to balance member milk supply with customer demand, improving their negotiating position. These cooperatives provide their customers a full supply of raw milk and remove the burden of disposing of unneeded milk. The extent and character of these cooperatives' manufacturing/processing operations vary widely. Overall, they use about 51 percent of their milk supply in their plants and sell the rest as raw, bulk milk.

Some cooperatives sell most of their milk raw and also operate a plant or two solely for balancing purposes. When their member milk supply exceeds the volume needed by their customers, they manufacture the milk into bulk commodity, or generic, products such as butter and nonfat dry milk powder, and, occasionally, cheese. However, these plants are often run below capacity and may even stand idle at times when milk supply is short. This results in high operating costs. The number of cooperatives operating plants just for balancing purposes shrunk to 12 by 2000 because it was costly to maintain their small, aging plants. Building new, large-scale plants was also expensive, particularly for small balancing cooperatives. Thus, some merged with larger manufacturing/processing cooperatives while others abandoned their balancing operations and became bargaining-only cooperatives. Still, about 10 percent of all milk handled by cooperatives was handled by those that operated primarily balancing plants.

In contrast to these "balancing" cooperatives, a few cooperatives focus more resources on their manufacturing operations and operate a system of large-scale plants at maximum capacity to achieve low per-unit manufacturing costs. They run a high-volume of member milk through their plants to make "hard products" (undifferentiated or commodity butter, powder, and cheese). Unlike the balancing cooperatives, these "hard product manufacturing" cooperatives market only a small portion of their member milk in the bulk form.

They have limited flexibility to adjust their product mix to changes in the market because they are committed to operating their plants at maximum capacity to make a limited line of com-

modity products. Volatile milk prices leave them subject to inventory losses arising from unexpected price movements. A couple of hard product manufacturing cooperatives consolidated and expanded their product lines, leaving three medium-sized cooperatives focused on hard product manufacturing in 2000. These handle about 2 percent of the cooperative milk volume.

Quite distinct from the cooperatives making undifferentiated products, a number of small- and medium-sized cooperatives (22 in 2000) use all of their members' milk to manufacture and market specialty or branded cheese and other dairy products for particular markets. These cooperatives aim to capture some marketing margins in addition to processor margins, thus taking their operations closer to the consumer.

While somewhat sheltered from the volatility and low margins of the commodity markets, these artisan cooperatives must be able to produce and market a high-quality, unique product. They lack the size and scale to compete on price with the large commodity cheesemakers. Thus, their viability depends upon an ability to find and develop a niche for their specialty product. For those unable to do so, the market is unforgiving. However, with the increasing consumer interest in "organic" and "farm-based" or local production, and specialty cheeses, a number of new specialty cooperatives have been started.

In a similar vein, a small number of dairy cooperatives have been successful in marketing bottled milk. These fluid processing cooperatives also capture processor margins and at least some marketing margins through their operations. Most of these long-established cooperatives use most, if not all, of the milk they handle in their own plants. This sector is extremely competitive and requires ample financial resources and top-notch management to survive. Over time, many have merged into larger, more diversified cooperatives, leaving just five operating in 2000. Fluid processing cooperatives account for just 1 percent of all milk handled by dairy cooperatives.

Finally, some cooperatives operate a system of plants to process (bottle) fluid milk and manufacture a variety of dairy products—both commodity and differentiated. At the same time, they sell a substantial portion of their milk supply to other handlers. Some are sophisticated marketers of branded, consumer products. The diversified operations better position these cooperatives to

direct milk to its most profitable use. Thus, they are well positioned to capture processor and marketing margins from many enterprises.

Many of these "diversified" cooperatives are the result of mergers and consolidation between cooperatives that previously had a more narrow operating focus. Several perform some of their manufacturing/processing through joint ventures or partnerships with other dairy companies. The 14 diversified cooperatives in 2000 represent about 82 percent of all milk handled by manufacturing/processing cooperatives (i.e., excluding the milk represented by bargaining-only cooperatives).

Cooperative cooperation—Dairy cooperatives work together in assorted ways to serve their members. As mentioned earlier, dairy cooperatives have formed joint ventures and federations or marketing-agencies-in-common (MAC) with other dairy cooperatives to enhance their ability to market members' milk.

These organizational structures allow the participating cooperatives to maintain their individual identities while strengthening their collective position in various pursuits. The least formal arrangement may be where membership areas overlap and cooperatives "swap" milk--pick up and/or receive each other's members' milk, allowing them to more efficiently move milk from farm to plant—a cost savings.

Some marketing agencies coordinate activities of their member cooperatives in establishing a scale of regional and interregional service charges for milk above Federal order minimums. They negotiate price premiums for fluid milk, provide a forum for adjusting sales policies and coordinate more efficient raw milk shipments. One marketing agency acts as the sales agent for the group of dairy cooperatives' nonfat dry milk, capturing savings from a centralized marketing effort and disseminating proprietary market information among members.

Summary--The nation's dairy cooperatives have shown their ability to successfully adapt to the changes in the marketing environment and offer a wide variety of avenues for dairy farmers to market their milk. Their success has allowed milk producers to maintain the independence of their farm

firms. Thus, in contrast to other livestock sectors, dairy farmers have been able to maintain their autonomy while gaining some "muscle in the marketplace" through their cooperatives.

Associations Serving the Dairy Industry

Dairy cooperatives, as well as individual dairy producers, often belong to specialized organizations concerned with legislation, advertising, sales promotion, merchandising, marketing, public relations, and product research. The *National Milk Producers Federation* (NMPF) was founded in 1916 to provide dairy cooperatives and their dairy farmer members a voice in the formulation of policy concerning national issues affecting milk production and marketing. *Dairy Management Inc.* (DMI), is a domestic and international planning and management organization that endeavors to build demand for dairy products on behalf of the Nation's dairy farmers. DMI, along with international, state and regional organizations, manages the American Dairy Association, the National Dairy Council and the U.S. Dairy Export Council. These are just two of the many associations furthering the varied interests of the dairy industry.

Other associations and cooperatives assist in dairy production. Most of the *artificial insemination* (AI) organizations are organized as cooperatives. They provide dairy producers access to a variety of bulls, enabling producers to capitalize on the most recent genetic advances. Many *Dairy Herd Improvement Associativonvs* (DHIA) are organized as cooperatives and provide individvual dairy producers an economical method of obtaining information useful for improving breeding and management of dairy herds in order to improve productivity.

As the DHIA program moved away from its government roots in the 1990s, new business arrangements emerged, providing a broad range of information services for dairy farmers. Some AI and DHIA organizations consolidated into single entities. In other cases, dairy cooperatives have acquired DHIAs and created new companies to provide herd management tools.

The *National Mastitis Council* (NMC) is a non-profit organization devoted to reducing mastitis and enhancing milk quality by promoting research and providing information to the dairy industry regarding udder health, milking management and milk

quality. Many dairy producers also belong to farm production supply cooperatives to secure supplies for dairy and farming operations.

For More Information

Cooperative services publications:

RR 187 Structural Change in the Dairy Cooperative Sector,1992-2000

RR 188 Cost of Balancing Milk Supplies: Northeast Regional Market

RR 176 Financial Profile of Dairy Cooperatives, 1997

RR 173 Marketing Operations of Dairy Cooperatives

RR 166 A New Approach to Measuring DairyCo-op Performance

RR 164 Financial Statistics of the Largest Dairy Cooperatives, 1980-1995

RR 152 Dairy Cooperatives' Role in Managing Price Risks

RR 126 DariMac: An Export Marketing Agency-in-Common for Dairy Cooperatives

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